

WHAT IS CLAIMED IS:

1. A color conversion method of converting  
printing image data, which comprises process color image  
data defined by a coordinate value of a predetermined first  
color space, and spot color image data defined by a  
coordinate value of a characteristic direction, into image  
data defined by a coordinate value of a predetermined  
second color space, for a proofer for outputting a proof  
image in which an image obtained through printing of an  
image based on the printing image data in accordance with a  
predetermined printing condition is reproduced, said color  
conversion method comprising

a printing condition conversion step associated  
with a printing condition, of converting the coordinate  
value of the first color space into coordinate values of a  
colorimetry color space which is device-nondependent;

a spot color reference step of converting a spot  
color name into the coordinate values of the colorimetry  
color space;

a proof condition conversion step associated with  
a proof condition, of converting the coordinate values of  
the colorimetry color space into coordinate values of the  
second color space; and

a composition step of synthesizing, on the  
colorimetry color space or the second color space, image  
data defined by coordinate values of the colorimetry color

space or the second color space, wherein the process color  
image data is converted, with image data defined by  
coordinate values of the colorimetry color space or the  
second color space, wherein the spot color name is  
5 converted,

wherein the printing image data, which comprises  
the process color image data defined by the coordinate  
value of the first color space, and the spot color image  
data defined by the coordinate value of the characteristic  
10 direction, is converted into the image data defined by the  
coordinate value of the second color space, for the proofer.

2. A color conversion method according to claim 1,  
wherein said composition step is a step of synthesizing  
15 different types of image data on the second color space,

of the printing image data, the process color  
image data defined by the coordinate value of the first  
color space is converted into image data defined by the  
coordinate values of the colorimetry color space in said  
20 printing condition conversion step, and the image data  
defined by the coordinate values of the colorimetry color  
space thus obtained through the conversion is further  
converted into image data defined by the coordinate value  
of the second color space in said proof condition  
25 conversion step,

the spot color name is converted into the  
coordinate values of the colorimetry color space in said

spot color reference step, and the coordinate values of the colorimetry color space thus obtained through the conversion is converted into the coordinate value of the second color space in said proof condition conversion step, and

in said composition step, the image data defined by the coordinate value of the second color space, for the proofer, is synthesized in accordance with the image data defined by the coordinate value of the second color space, after conversion by said proof condition conversion step, the coordinate value of the second color space corresponding to the spot color, after conversion by said proof condition conversion step, and the spot color image data of the printing image data.

3. A color conversion method according to claim 1, wherein said composition step is a step of synthesizing different types of image data on the colorimetry color space,

of the printing image data, the process color image data defined by the coordinate value of the first color space is converted into image data defined by the coordinate values of the colorimetry color space in said printing condition conversion step,

the spot color name is converted into the coordinate values of the colorimetry color space in said spot color reference step,

in said composition step, the image data defined by the coordinate values of the colorimetry color space, for the proofer, is synthesized in accordance with the image data defined by the coordinate values of the colorimetry color space, after the conversion by said printing condition conversion step, the coordinate values of the colorimetry color space corresponding to the spot color, after the conversion by said spot color reference step, and the spot color image data of the printing image data, and

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the image data defined by the coordinate values of the colorimetry color space, for the proofer, which is synthesized by said composition step, is converted by said proof condition conversion step into the image data defined by the coordinate value of the second color space, for the proofer.

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4. A color conversion method according to claim 2, wherein prior to conversion of the printing image data into the image data for the proofer, there is produced a process color conversion step in which the coordinate value of the first color space is directly converted into the coordinate value of the second color space in accordance with said printing condition conversion step and said proof condition conversion step,

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in conversion of the process color image data of the printing image data, there is applied said process

color conversion step instead of individual application of both said printing condition conversion step and said proof condition conversion step, so that of the printing image data, the process color image data defined by the coordinate value of the first color space is converted into image data defined by the coordinate value of the second color space before synthesized with the spot color image data.

5 coordinate value of the first color space is converted into image data defined by the coordinate value of the second color space before synthesized with the spot color image data.

10 5. A color conversion apparatus for converting printing image data, which comprises process color image data defined by a coordinate value of a predetermined first color space, and spot color image data defined by a coordinate value of a characteristic direction, into image data defined by a coordinate value of a predetermined second color space, for a proofer for outputting a proof image in which an image obtained through printing of an image based on the printing image data in accordance with a predetermined printing condition is reproduced, said color

15 data defined by a coordinate value of a predetermined second color space, for a proofer for outputting a proof image in which an image obtained through printing of an image based on the printing image data in accordance with a predetermined printing condition is reproduced, said color conversion apparatus comprising:

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a definition storage section for storing

a first coordinates conversion definition associated with a printing condition, defining an association between the coordinate value of the first color space and the coordinate values of a colorimetry color space which is device-nondependent,

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a spot color and coordinates conversion definition

defining an association between a spot color name and the coordinate values of the colorimetry color space,

a second coordinates conversion definition defining an association between the coordinate values of the colorimetry color space and the coordinate value of the second color space, and

a coordinates composition definition defining an association among coordinate values of the colorimetry color space or the second color space, wherein the process color image data is converted, on the colorimetry color space or the second color space, coordinate values of the colorimetry color space or the second color space, wherein the spot color name is converted, and a set of coordinate values wherein said two types of coordinate values are synthesized; and

a color conversion section for converting the printing image data, which comprises the process color image data defined by the coordinate values of the first color space and the spot color image data defined by the coordinate values of the characteristic direction, into the image data defined by the coordinate value of the second color space, for the proofer, referring to said first coordinates conversion definition, said spot color and coordinates conversion definition, said second coordinates conversion definition, and said coordinates composition definition, which are stored in said definition storage section.

6. A color conversion apparatus according to claim 5, wherein said coordinates composition definition, which is stored in said definition storage section, defines an association between said two types of coordinate values of the second color space and said set of coordinate values, and said color conversion section comprises:

first conversion means for converting the process color image data defined by the coordinate value of the first color space, of the printing image data, into image data defined by the coordinate values of the colorimetry color space, referring to said first coordinates conversion definition;

second conversion means for converting the spot color name into the coordinate values of the colorimetry color space, referring to said spot color and coordinates conversion definition;

third conversion means for converting the image data defined by the coordinate values of the colorimetry color space, after conversion by said first conversion means, into image data defined by the coordinate value of the second color space, referring to said second coordinates conversion definition;

fourth conversion means for converting the coordinate values of the colorimetry color space, associated with the spot color, after conversion by said second conversion means, into the coordinate value of the

second color space, referring to said second coordinates conversion definition;

first composition means for synthesizing the image data defined by the coordinate value of the second color space, for the proofer, in accordance with the image data defined by the coordinate value of the second color space, after conversion by said third conversion means, the coordinate value of the second color space corresponding to the spot color, after conversion by said fourth conversion means, and the spot color image data of the printing image data, referring to said coordinates composition definition.

7. A color conversion apparatus according to claim 5, wherein said coordinates composition definition, which is stored in said definition storage section, defines an association between said two types of coordinate values of the colorimetry color space and said set of coordinate values, and said color conversion section comprises:

fifth conversion means for converting the process color image data defined by the coordinate value of the first color space, of the printing image data, into image data defined by the coordinate values of the colorimetry color space, referring to said first coordinates conversion definition;

sixth conversion means for converting the spot color name into the coordinate values of the colorimetry color space, referring to said spot color and coordinates



conversion definition;

second composition means for synthesizing the image data defined by the coordinate values of the colorimetry color space, for the proofer, in accordance with the image data defined by the coordinate values of the colorimetry color space, after conversion by said fifth conversion means, the coordinate values of the colorimetry color space corresponding to the spot color, after conversion by said sixth conversion, and the spot color image data of the printing image data, referring to said coordinates composition definition; and

seventh conversion means for converting the image data defined by the coordinate values of the colorimetry color space, for the proofer, which is synthesized by said second composition means, into the image data defined by the coordinate value of the second color space, for the proofer, referring to said second coordinates conversion definition.

8. A color conversion apparatus according to claim 5, wherein said coordinates composition definition, which is stored in said definition storage section, defines an association between said two types of coordinate values of the colorimetry color space and said set of coordinate values, and said color conversion section comprises:

coordinates conversion definition construction means for constructing a third coordinates conversion

definition to directly associate the coordinate value of the first color space with the coordinate value of the second color space in accordance with said first coordinates conversion definition and said second

5 coordinates conversion definition;

          eighth conversion means for converting the process color image data defined by the coordinate value of the first color space, of the printing image data, into image data defined by the coordinate values of the second color space, referring to said third coordinates conversion

10 definition;

          ninth conversion means for converting the spot color name into the coordinate values of the colorimetry color space, referring to said spot color and coordinates

15 conversion definition;

          tenth conversion means for converting the coordinate values of the colorimetry color space corresponding to the spot color, after conversion by said ninth conversion means, into the coordinate value of the

20 second color space, referring to said second coordinates conversion definition; and

          third composition means for synthesizing the image data defined by the coordinate values of the second color space, for the proofer, in accordance with the image data

25 defined by the coordinate values of the second color space, after conversion by said eighth conversion means, the coordinate values of the second color space corresponding

to the spot color, after conversion by said ninth conversion, and the spot color image data of the printing image data, referring to said coordinates composition definition.

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9. A color conversion definition storage medium storing a color conversion definition for converting printing image data, which comprises process color image data defined by a coordinate value of a predetermined first color space, and spot color image data defined by a coordinate value of a characteristic direction, into image data defined by a coordinate value of a predetermined second color space, for a proofer for outputting a proof image in which an image obtained through printing of an image based on the printing image data in accordance with a predetermined printing condition is reproduced, said color conversion definition comprising:

a first coordinates conversion definition associated with a printing condition, defining an association between the coordinate value of the first color space and the coordinate values of a colorimetry color space which is device-nondependent;

a spot color and coordinates conversion definition defining an association between a spot color name and the coordinate values of the colorimetry color space;

a second coordinates conversion definition defining an association between the coordinate values of

the colorimetry color space and the coordinate value of the second color space, said second coordinates conversion definition being associated with a proof condition; and

5 a coordinates composition definition defining an association among coordinate values of the colorimetry color space or the second color space, wherein the process color image data is converted, on the colorimetry color space or the second color space, coordinate values of the colorimetry color space or the second color space, wherein  
10 the spot color name is converted, and a set of coordinate values wherein said two types of coordinate values are synthesized.

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